

Application No. 10/056,845
Amendment dated December 8, 2005
Reply to Office Action dated September 14, 2005

AMENDMENT TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A low-temperature oxidation-reduction catalyst comprising:
a noble metal selected from the group consisting of platinum, palladium, gold, silver and rhodium;
a mixed-metal oxide layer comprising:
a first metal oxide which possesses more than one stable oxidation state
[including at least] consisting of tin oxide;
a second metal oxide [including at least] consisting of zirconium oxide;
a third metal oxide selected from the group consisting of cerium oxide, hafnium oxide, lanthanum oxide, and ruthenium oxide; and
said first, second and third metal oxide each being an active catalytic component of said mixed-metal oxide layer; and
wherein said first metal oxide, second metal oxide, and third metal oxide have a mass ratio of about 1.0: 0.5: 0.5.
2. (Cancelled)
3. (Previously Presented) A low-temperature oxidation-reduction catalyst of claim 1, wherein said third metal oxide is cerium oxide.
4. (Cancelled)
5. (Previously Presented) A low-temperature oxidation-reduction catalyst of claim 1, further comprising a promoter selected from the group consisting of oxides of the metals of the transition series of the periodic table of elements, wherein the promoter is present in an amount sufficient to provide from about 1 to about 12 atom percent of promoter metal to tin metal.
6. (Previously Presented) A low-temperature oxidation-reduction catalyst of claim 1, wherein said noble metal is from about 1 to about 50 weight percent, based on the total weight of the catalyst; and the first and second metal oxide are collectively from about 50 to about 99 weight percent, based on the total weight of the catalyst.
7. (Previously Presented) A low-temperature oxidation-reduction catalyst of claim 1, for use in the oxidation of carbon monoxide.

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8. (Previously Presented) A low-temperature oxidation-reduction catalyst of claim 1 for use in the oxidation of formaldehyde.

9. (Previously Presented) A low-temperature oxidation-reduction catalyst of claim 1 for use in the oxidation of volatile organic compounds.

10. (Previously Presented) A low-temperature oxidation-reduction catalyst of claim 9, wherein the volatile organic compounds are hydrocarbons.

11. (Previously Presented) A low-temperature oxidation-reduction catalyst of claim 1 for use in the reduction of nitrogen oxide species.

12-16 (Cancelled)

17. (Newly Presented) A low-temperature oxidation-reduction catalyst comprising:
a noble metal selected from the group consisting of platinum, palladium, gold, silver and rhodium;
a mixed-metal oxide layer comprising:
a first metal oxide which possesses more than one stable oxidation state consisting of tin oxide;
a second metal oxide consisting of zirconium oxide;
a third metal oxide selected from the group consisting of cerium oxide, hafnium oxide, lanthanum oxide, and ruthenium oxide; and
said first, second and third metal oxide each being an active catalytic component of said mixed-metal oxide layer; and
wherein said noble metal is from about 1 to about 50 weight percent, based on the total weight of the catalyst; and the first and second metal oxide are collectively from about 50 to about 99 weight percent, based on the total weight of the catalyst.

18. (Newly Presented) A low-temperature oxidation-reduction catalyst of claim 17, wherein said third metal oxide is cerium oxide.

19. (Newly Presented) A low-temperature oxidation-reduction catalyst of claim 17, wherein said first metal oxide, second metal oxide, and third metal oxide have a mass ratio of about 1.0: 0.5: 0.5.

20. (Newly Presented) A low-temperature oxidation-reduction catalyst of claim 17, further comprising a promoter selected from the group consisting of oxides of the metals of the transition series of the periodic table of elements, wherein the promoter is present in an amount sufficient to provide from about 1 to about 12 atom percent of promoter metal to tin metal.

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21. (Newly Presented) A low-temperature oxidation-reduction catalyst of claim 17, for use in the oxidation of carbon monoxide.
22. (Newly Presented) A low-temperature oxidation-reduction catalyst of claim 17 for use in the oxidation of formaldehyde.
23. (Newly Presented) A low-temperature oxidation-reduction catalyst of claim 17 for use in the oxidation of volatile organic compounds.
24. (Newly Presented) A low-temperature oxidation-reduction catalyst of claim 23, wherein the volatile organic compounds are hydrocarbons.
25. (Newly Presented) A low-temperature oxidation-reduction catalyst of claim 17 for use in the reduction of nitrogen oxide species.